

Remarks:

Reconsideration of the application is requested.

Claims 1-7 remain in the application. Claim 7 has been amended. A marked-up version of claim 7 is attached hereto on a separate page. The specification has been amended so as to correct a typographical error, a marked up version of the change is attached hereto on a separate page.

In the second paragraph on page 2 of the above-identified Office action, the drawings have been objected to under 37 CFR 1.83(a). The Examiner stated that the phrase stating that the carrier includes a plate made of ceramic, said metal area is applied on said plate, and said chip has a contact area formed by said metal area in claim 7, must be shown or the features(s) cancelled from the claim(s). The drawing has been changed to show the ceramic layer "K". Therefore the objection by the Examiner is now moot.

In the fourth paragraph on page 2 of the above-identified Office action, claim 7 has been rejected as being indefinite under 35 U.S.C. § 112.

More specifically, the Examiner has stated that in claim 7, it is unclear and confusing as to what is meant by "carrier 4

includes a plate made of ceramic, said metal area is applied on said plate, and said chip has a contact area formed by said metal area." The Examiner asked, where this is shown and what part makes up the plate made of ceramic, since claim 1 claims the carrier having a metal area essentially composed of copper. Claim 7 has been amended so as to clarify that the metal area forms a contact area for the chip. Therefore, the rejection is now moot.

It is accordingly believed that the specification and the claims meet the requirements of 35 U.S.C. § 112, first and second paragraphs. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved. The above-noted changes to the claims are provided solely for cosmetic or clarificatory reasons. The changes are not provided for overcoming the prior art nor for any reason related to the statutory requirements for a patent.

In the second paragraph on page 3 of the Office action, claims 1-7 have been rejected as being obvious over Bareither et al. (U.S. Patent No. 5,731,635) under 35 U.S.C. § 103.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and

the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

"a buffer layer configured on said metal area, said buffer layer being essentially composed of nickel and having a thickness between 5 μm and 10 μm ; and

a connecting medium for fixedly connecting said chip to said carrier;

said chip being configured, without a chip housing, on said metal area such that only said connecting medium is configured between said rear side metallization layer of said chip and said buffer layer."

The Bareither et al. reference discloses a semiconductor device where a semiconductor chip is fastened to a carrier and provided with electrical connection lines and incorporated in a package (column 1, lines 17-23). The object of the Bareither et al. reference is to provide a durable electrical, mechanical, and thermal contact between the semiconductor

component the metallization, with an improved long-term stability (column 2, lines 1-6)..

The reference does not show or suggest:

a buffer layer configured on the metal area, said buffer layer being essentially composed of nickel and having a thickness between 5 μm and 10 μm , and a connecting medium for fixedly connecting the chip to the carrier, the chip being configured, without a chip housing, on the metal area such that only said connecting medium is configured between the rear side metallization layer of the chip and the buffer layer.

As is recited in claim 1 of the instant application, contrary to the Bareither et al. reference, the present invention does not pertain to a chip that is fastened to a carrier and provided with electrical connection lines and incorporated in a package and soldered in a circuit or assembly. The object of the present invention is to provide a chip without a housing that is inserted into a circuit or assembly and is electrically connected to a carrier via a connecting medium. Furthermore, the present invention discloses an uncommonly thick buffer layer having a thickness between 5 μm to 10 μm , which is applied to the carrier. In the Bareither et al. reference however, a nickel layer of .2 μm to .3 μm is applied on the semiconductor component. In the Bareither et al.

reference, in order to achieve a connection with long-term stability between the semiconductor component and the carrier, four metal layers are used. However, in the present invention, a single thick nickel layer supplied as a buffer layer is sufficient to solve the same problem.

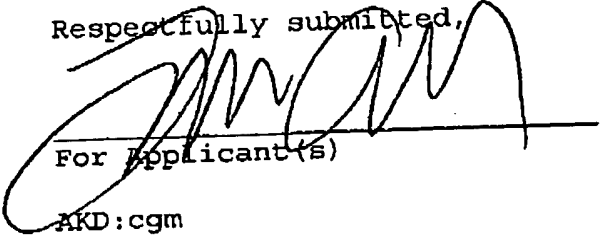
It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claim 1, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-7 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel respectfully requests a telephone call so that, if possible, patentable language can be worked out.

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner & Greenberg P.A., No. 12-1099.

Respectfully submitted,


For Applicant(s)

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November 27, 2002

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GR 01 P 0922

Marked-up version of the claims:

Claim 7 (amended). The carrier and the chip configuration according to claim 1, wherein said carrier includes a plate made of ceramic, said metal area is applied [on] above said plate, and said [chip has a contact area formed by said metal area] metal area forms a contact area for said chip.

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Marked-up version of the specification:

Replace the paragraph between page 4, lines 9-12 with the following:

--In accordance with a further added feature of the invention, the carrier includes a plate made of ceramic, the metal area is applied [on] above the plate, and the metal area serves as a contact area of the chip.--

GR 01 P 0922

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Kurt Gross et al.
Appl. No. : 10/057,154
Filed : January 25, 2002
Title : Carrier with a Metal Area and at Least One
Chip Configured on the Metal Area
Examiner : Alexander Q. Williams
Group Art Unit : 2826

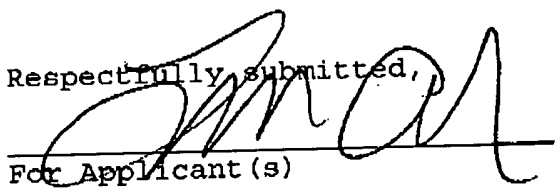
REQUEST TO APPROVE DRAWING CHANGES

Hon. Commissioner of Patents and Trademarks,
Washington, D. C. 20231

S i r :

Please approve the drawing changes, which are marked on the
accompanying drawings. The ceramic plate labeled "K" has been
included in the figure.

Respectfully submitted,


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